

AMENDMENT UNDER 37 C.F.R. § 1.111
USSN: 09/883,357

Cont'd
A1
automatic shift houses one stereoscopic and two compound objectives. All objectives are, by way of example, parcenter and parfocal.

Page 1, paragraph 3, replace it with the following new paragraph:

A2
Conventionally, fluorescence equipped stereo microscopes permit users to view samples, typically in a magnification range of 10x-120x. If the magnification is sufficient to observe the structure in fluorescence, then sorting of the sample is possible. On the other hand, if the magnification is insufficient to view the structure in common, each sample must be taken out of the Petri dish, placed on a microscope slide, and transferred to another high magnification compound fluorescence microscope for evaluation and selection. The prior art thus was extremely tedious and time consuming.

Page 2, paragraph 2, replace it with the following new paragraph:

A3
The system according to the invention thus has the following advantages. First, it provides two-dimension and three-dimension images on one microscope system for both transmitted light brightfield and reflected light fluorescence viewing. An objective turret with automatic shift is provided for one stereo objective and two compound objectives. When the objective turret with automatic shift rotates from stereo objective to compound objective, the microscope automatically shifts left to single optical axial system. Both the stereo objective and the compound objective positions allow the sample in view to remain in the middle of the area seen by the observer. Objectives are parcenter and parfocal.

Page 2, paragraph 5, which bridges over to page 3, replace it with the following new paragraph:

AY According to the present invention, there is provided a microscope having a microscope for viewing samples in stereoscopic and in compound optical images in transmitted light brightfield and reflected light fluorescence, said microscope comprising: a stereo objective; a compound objective; an objective turret with automatic shift carrying said stereo objective and said compound objective; stereo microscope body that is shiftable about an axis to be placed properly over the stereo objective or the compound objective; a transmitted light base for providing illumination for transmitted light brightfield for said stereo and compound objectives; and a prism shift mechanism to create binocular images from a single axis compound image created.

Page 3, paragraph 6, replace it with the following new paragraph:

AS Figure 5 illustrates a bottom view of the objective turret with automatic shift from the microscope of Figure 1;

Page 4, first full paragraph, replace it with the following new paragraph:

AP Figure 1 is a side view of the microscope. The microscope includes a transmitted light base 1, compound objective 31, focus drive 3, an auto prism shift mechanism 28, viewing head 5, eyepieces 6, GFP (Green Fluorescent Protein) Quad turret illuminator 7, stereo microscope body 8, objective turret with automatic shift 9, and a stereo objective 29.

Page 4, paragraph 2, replace it with the following new paragraph:

A7
Figure 2 shows a top view of the transmitted light base 1. It includes a control knob for selecting condenser or mirror (with aperture control) 11, aperture diaphragm 12, power supply 13, fiberoptic bundle 14, solenoid switch 15, switch box 16, high power condenser 17, frosted mirror 18, adjustment knob for mirror tilt 19, and a plain mirror 20.

Page 4, paragraph 3, replace it with the following new paragraph:

A8
Figure 3 shows a rear view of the transmitted light base 1, which further includes a fiberoptic bundle 14, switch box 16, solenoid 23, and a power supply 13.

Page 4, paragraph 4, replace it with the following new paragraph:

A9
Figure 4 is a top view of an auto prism shift assembly 4. The assembly includes a special combining prism 25 which splits single beam path image into two beam path binocular images for viewing by observer, linkage for prism adjustment 26, magnet for quick release 27, and flexible cable for auto shift mechanism 28 which attaches to objective turret with automatic shift 9.

Page 4, paragraph 5, replace it with the following new paragraph:

A10
Figure 5 is a bottom view of the objective turret with automatic shift 9. It includes a stereo objective receptacle 29, auto axial shift mechanism 30, and two receptacles for two compound objectives 31. When rotating objective turret with automatic shift (9), the microscope carrier (B) automatically moves from the stereo objective to the compound objective position.

Page 4, paragraph 6, replace it with the following new paragraph:

A11
Figure 6 depicts a top view of a quadruple filter turret assembly and filter module, including permanent magnets 32, 34, filter module 36, and filter turret 35.

Page 4, paragraph 7, replace it with the following new paragraph:

A12
Figures 7a, 7b, 7c and 7d illustrate various views of filter modules 36, including filter module 36, a safety key 37 and a barrier filter slider 38.

Page 5, paragraph 2, replace it with the following new paragraph:

A13
The microscopic system combines the capabilities of a stereo fluorescence microscope and the optics of a compound microscope for fluorescence on one system. Both two-dimensional and three-dimensional images are on one system. It permits fluorescence observations in the stereoscopic mode (mag. 10x-120x). In addition the system has an objective turret with automatic shift 9 which can hold two infinity corrected high magnification, long working distance lenses 31 (mag. possible up to 700x) as well as the stereo lens 29 (Figure 5). When either of these lenses is rotated into the optical path, the stereo microscope optical system 8 (Figure 1) shifts to the left while the objective remains over the center of the optical field. This allows the optical center to remain constant and the compound objective now functions through the right side optical axis of the stereo microscope. This new resulting 2-D high magnification fluorescence image is then split with a prism 25 (Figure 4) to create binocular observation.

Page 6, paragraph 3, replace it with the following new paragraph:

For example, one filter module for Green Fluorescence Protein (GFP) excitation:

Filter module has exciter filter: 470nm

Dichroic mirror: 485nm

Two sliders available for emission either 500 LP or 525BP

Sliders are interchangeable so that on one filter module, the user can see either wideband (500 LP) or narrow band (525 BP) GFP by exchanging barrier filter sliders.

Page 7, paragraph 1, replace it with the following new paragraph:

The objective turret with automatic shift 9 is linked to an automated axial shift mechanism 30 (Figure 5). When the stereo objective is in place, it is centered under the dual path of the stereo optics carrier. This permits 3D observation in fluorescence. When the objective turret with automatic shift is rotated to being either of the compound lenses 31 into position, the microscope carrier B is automatically shifted so that the single right hand optical pathway of the stereo optics carrier is centered above the compound objective. This now permits a 2D observation in fluorescence. The sample remains parcenter to the field of view since the stereo objective and compound objective each stop in the exact same position. In addition the objectives are adjustable to be parfocal to each other.

Page 7, paragraph 2, replace it with the following new paragraph:

A16
The objective carrier with automatic shift 9 is also automatically linked to the prism shift mechanism 4. When the objective carrier with automatic shift 9 is in stereo position, the prism 25 (Figure 4) is automatically out of path. When the objective carrier with automatic shift 9 is rotated to compound position, the prism 25 is automatically shifted into position. This prism 25 then takes the single beam path of observable light from the right hand optical path, and splits it into a binocular image for binocular observation. It can be manually slid out of the path to allow 2x light intensity.

Page 8, paragraph 1, replace it with the following new paragraph:

A17
There has thus been shown and described a microscope which fulfills all of the objects and advantages sought therefore. Many changes, modifications, variations, and other uses and applications of the subject invention will, however, become apparent to those skilled in the art after considering the specification on the accompanying drawings which disclosed preferred embodiments thereof. Also, changes, modifications, variations, and other uses and applications which do not depart from the spirit and scope of the invention are deemed to be covered by the invention which is limited only by the claims which follow.